Dear EBPS members,

Let me start this message by expressing the hope that you and your loved ones are healthy and well. At the time you received our previous newsletter, I was optimistically referring to the fresh start of a new year, and to the events that EBPS was organizing. It was only a few weeks later that our lives radically changed. Instead of optimism, there was a grave concern for our health, the health of our families and global health. And there suddenly was the surreal situation of public life coming to a halt, as well as most – if not all – of our research activities. We all have had to adapt to working from home, meeting colleagues virtually, teaching online, taking care of our children’s schoolwork, and keeping in touch with friends and relatives. It was not long before I started to realize that the Covid-19 pandemic may substantially change the way we live, interact and work for a long time. At this time, it is hard to predict when and in which way we will be able to resume our experiments, and to interact as scientists. In the meantime there have been major changes in our organized activities. As you have heard, our EBPS workshop on ‘Behaviour to Biomarkers: Reverse Translation in 2020’ has been postponed to next spring. The FENS Forum this July is going ahead as a virtual meeting, and so is the mini-conference on ‘Behavioural neuroscience for the next decade: Why behaviour matters to brain science’ that EBPS is jointly organizing with three other societies to precede the FENS Forum. Stay tuned for updates on how to register and participate!

In this newsletter, you will see how the members of the EBPS Executive Committee are coping with working from home. You may find it inspiring, or – so I hope – at least amusing. In addition, newly appointed Full Committee member Markus Heilig will introduce himself. We also have our regular commentary on a paper recently published in Psychopharmacology. This time it’s by Jordan Carter and Carmela Reichel talking about their research on the impact of stress on drug seeking behaviours.

In the message on the Covid-19 pandemic I sent last month, I expressed the hope that somehow, positive things might emerge for you from this grave situation. I was not being naïve, or perhaps I was being deliberately naïve. Still, despite the worries, sadness, and difficulties we are facing, I do wish that you can find the peace and quiet to consider your work and life from a distance, and that helpful and constructive insights will come out of this. In a more general sense, the reliance of many of our governments on scientific knowledge about the SARS-CoV2 virus may result in an increased appreciation for science, which we all welcome.

Let me end with a remark on social distancing. Someone noticed on social media that this term is a bit misleading, in the sense that we should not socially distance ourselves from our colleagues and loved ones. The distance should be physical, but should not go at the expense of closeness, connectedness and the sense of community. In fact, sense of community is something that I have always felt and appreciated within the EBPS. With this, I would like to present this newsletter to you, and wish you happy reading.

My best wishes,

Louk Vanderschuren
EBPS President

FENS 2020
Virtual Forum
11-15 July 2020

As a consequence of the COVID-19 pandemic, the FENS Forum 2020 will be held entirely virtually. The Virtual Forum will offer the same cutting edge scientific programme as always, including lectures, posters, symposia, an exhibition and professional development opportunities. Accessible from all over the world, the Forum represents an exciting alternative for our delegates to the regular physical Forum. Professionally implemented online, the Forum will provide all delegates with plenty of opportunities to learn, interact, grow and network. From 11-15 July 2020, you will be able to attend the events at the live FENS 2020 Virtual Forum. Following the live event, and for up to three months afterwards, you will have on-demand access to all sessions, lectures, events and the exhibition hall. You can find out more details here. FENS would like to ensure the possibility for all of its members to attend the Virtual Forum by offering grants and vouchers of 75 EUR each to support the attendance. All FENS members that have been negatively impacted by the COVID-19 crisis are invited to apply, but priority will be given to early career scientists. Application info can be found here. The deadline is Tuesday, 12th May. We will also be continue to hold our pre-FENS virtual miniconference ‘Behavioural Neuroscience for the Next Decade: Why Behaviour Matters to Brain Science.’ More info can be found here.
I was born in 1959 into a Jewish family in Poland. Ten years later, we became refugees. Sweden provided us a safe haven, for which I will remain forever grateful. Lund, a small university town, became home. Here, I received my MD (1986), and PhD (1989). A post-doc at Scripps in LaJolla 1990 – 1992 offered an opportunity to put off choosing between my two passions, psychiatry and internal medicine. In the end, George Koob’s wonderful mentorship became a decisive factor for getting me hooked on the brain, and how it produces behavior.

I returned to Sweden, completed clinical psychiatry training, and then served at the Karolinska Institute in Stockholm in various clinical and academic leadership roles. In 2004, I was recruited to direct clinical and translational research at the US National Institute on Alcohol Abuse and Alcoholism. Over a decade, we built a translational program that worked on identifying novel alcoholism treatments.

In 2015, with the support of a new Swedish Research Council program, I returned to Sweden and Linköping Univ as professor of psychiatry and founding director of the Center on Social and Affective Neuroscience. Without noticing it, I guess I have transitioned from being somewhat of a rebel – can you imagine that still a decade ago, Sweden had harsh limits on provision of methadone and buprenorphine treatment for opioid addiction? not anymore! – to advising our government agencies, and becoming elected to the Swedish Royal Academy of Sciences. Go figure.

Our program currently studies brain processes and long-term neuroadaptations involved in alcohol addiction and other stress-related disorders, such as PTSD. We still hope to discover biological mechanisms that can be targeted for pharmacotherapies. In recent years, we have devoted major efforts to expanding our research strategies, so that they better take into account factors such choices between drug- and natural rewards, and social influences on addiction and other psychiatric disorders. Ongoing studies seek to integrate these behavioral processes with an understanding of their neural substrates. We do molecular neuroscience in rat models, and experimental medicine in humans. Our research spans from analysis of gene expression and its epigenetic programming as influences on behavior in rats, to human studies utilizing behavioral, neuroendocrine, psychophysiological and functional brain imaging-based methods.

If you ask my family – Helena, the psychiatric nurse and my beautiful wife of almost 25 years, our kids - Johan (Traitor. Surgery? Really?), Martin (ever the charmer), Sara (you know psychiatry is your only option once you graduate med school, right?) and Hanna (help! never move out!) - they might say that I live under a rock, and don’t have much of a life. Even the dog Maui might agree. It is true that between running the center, doing science and teaching, there really isn’t much time for hobbies. Then again, I am as nerdy as they come. My work IS my hobby. But when I need a break, I run, play squash or ski. And I read. In the end, Camus, Tolstoy and Kafka are probably my best friends.

Email: markus.heilig@liu.se
Twitter: @Heilig_Lab

Prof Heilig is recruiting candidates for preclinical and clinical positions in his group. More information can be found here.

Have your details changed?
All our communications with members are carried out online. If we don’t have your most recent email address, then you miss out! So if you’ve moved labs or countries recently, let us know by sending us an email with your new details!
Working From Home during COVID-19

In this issue of our newsletter, we asked members of the EBPS committee to share with us they’re experiences in the transition from working in a lab to a home office.

Prof. Louk Vanderschuren, EBPS President
For me, the transition was not so much to working from home – I do that regularly when I need some quite time to write – but to working from home with the family present in the house all the time. Finding the right balance between getting work done and keeping our sons at their schoolwork/busy/company was a bit of a challenge, but we managed – actually, are having quite a good time together. As for unwinding, I have to express sincere gratitude to our dog Ella, for making me go out to get some fresh air several times a day. Besides that, making noise with my guitar and having fun with the family playing games – or just exchanging silly jokes – has been very relaxing too.

Dr. Shelly Flagel, EBPS General Secretary
I work best and am happiest when I have a schedule and am busy. While I realize not everyone thrives in this manner, I thought it would be helpful for both my family and my lab to have a schedule they could tap into as they see fit. For lab, this means virtual writing groups and meetings, and for my kids this means designated work, play and outdoor time. I made it clear to that it is all optional, as we definitely need flexibility in these difficult times. I live close to the University’s Botanical Gardens and take an early morning walk there to start each day. It has been such a pleasure to observe spring emerging in the Gardens. I am typically the only one on the trails and am often greeted by dozens of deer, wild turkeys and herons.

Prof. John Cryan, Past EBPS President
We went into working from home mode very suddenly on March 12th. As Head of Department and PI of a large lab, the first weeks were chaotic as teaching and assessments moved online and lab work ended abruptly. Now things are busier than ever with countless Zoom, Teams, WebEx, Skype, Slack, Messenger and Whatsapp calls. Home schooling the kids has had its ups and downs too but our dog Darwin helps bring a dose of reality and is still surprised we are around all the time. Overall, I’m enjoying the time with the family and not missing airports at all. We will return to a very different world and hopefully won’t retreat to our old ways. As Seamus Heaney said, ‘If we winter this one out, we can summer anywhere.’
Long-term impact of acute restraint stress on heroin self-administration, reinstatement, and stress reactivity
(Psychopharmacology, 2020)
Jordan Carter & Carmela Reichel

The comorbidity of post-traumatic stress disorder (PTSD) and substance use disorder (SUD) has been well-documented in the literature. For example, 30-50% of veterans with a diagnosis of PTSD also meet criteria for a SUD. This comorbidity is even more pronounced in females, with up to 60% of those seeking treatment for a SUD having a comorbid PTSD diagnosis. This interaction persists beyond just risk for developing the disorders as well, since emotional distress is a commonly reported risk factor for relapse. The problem is exacerbated by the opioid epidemic in the USA, as opioids like heroin are common drugs used by those with comorbid PTSD. Despite these described patterns, there are still significant gaps in our understanding of this comorbidity and how personality traits, neuroanatomy, and signaling molecules all may contribute. Given the disparity in prevalence of PTSD and SUD between males and females, with PTSD being twice as common in females and SUD being about twice as common in males, possible sex differences in these factors are of particular interest.

In our study, we used an acute restraint stress paradigm combined with contingent heroin self-administration (SA) to examine the long-term impacts that these assays had on stress-reactivity and basic reward processes in male and female rats (Figure 1). We used a 2-h restraint stress or sham experience paired with an odor stimulus, thereby conditioning a stress cue (CS), followed by heroin or saline self-administration and a battery of behavioral tests to evaluate stress reactivity (heroin reinstatement and a defensive burying task) and social-reward and anxiety-like behaviors (social place preference, SPP). Importantly, in our stress reactivity tests, in place of an unconditioned aversive stimulus (for defensive burying) or a stress-primer (for heroin reinstatement) we presented the odor CS. The use of the CS allowed us to not only confirm the efficacy of the restraint in sufficiently “stressing” the subjects, but also to better reflect the types of stimuli (i.e., sensory cues) that are most associated with “triggering” PTSD exacerbations.

Acute restraint stress had numerous impacts on heroin-related behaviors including more rapid acquisition of heroin SA, potentiated reinstatement to the stress CS alone, and delayed extinction of heroin conditioned cues when the stress CS was also present, but both stress and sham groups reinstated equally to the heroin conditioned cues alone. These findings indicate that stress plays an important role in both the acquisition and relapse phases of SUD, but perhaps not during the maintenance phase. We were pleased to see that the stress CS alone was able to potentiate reinstatement in the stress group, indicating the success of our odor-conditioning acute stress paradigm and confirming our predictions about the impact of stress cues alone on drug seeking behavior.
One significant challenge we encountered during this study was determining how to score and analyze the defensive burying assay. We decided to do a comprehensive evaluation examining a complete behavioral repertoire based on De Boer and Koolhaas’ criteria (PMID: 12600707). This method allowed us to evaluate a wide range of behaviors to better explain patterns of behavior within the task, which would not have been possible using a simpler scoring protocol. Given the interrelatedness of dependent variables and the number of independent variables (sex, stress, and drug group), a generalized linear mixed effects model was developed to analyze the range of defensive burying behavior. The majority of our effects were at the level of main effects. We found that all stress animals regardless of drug exposure or sex had a shorter bury latency and spent more time immobile or burying the dish containing the stress CS, indicating increased stress-reactivity relative to sham. Females spent more time ambulating or rearing, in agreement with prior studies indicating increased baseline activity relative to males, while males interestingly spent more time engaged in burying behavior. Finally, stress/saline animals regardless of sex spent the most time immobile, a surprising finding suggesting that perhaps heroin SA modifies responses such that the maladaptive, passive coping strategy (immobilization) is diminished and the active, escape strategy (burying and rearing) is potentiated.

Finally, given the importance of social factors on both disorders, we evaluated SPP. All rats developed SPP with no differences between groups, suggesting prior restraint stress nor heroin SA influenced conditioning to social reward. Despite this, stress rats had higher nose-to-nose interactions than sham, indicating a preference for direct social contact. Withdrawal from social support for fear of being reminded of trauma is one symptom of PTSD clinically, but the literature indicates that social support is an important component in the treatment of the disorder. These findings of increased direct social contact, though speculative, could indicate that stressed rats are seeking social interaction as one method of coping. Future studies involving introduction of the odor CS during SPP testing could help to support this hypothesis.

In total, we found significant differences in heroin SA, stress reactivity, social interaction, and anxiety-like behaviors between all groups evaluated in this study. We were happy to confirm the efficacy of our acute restraint stress odor conditioning model in recapitulating some of the key features of anxiety- and stress-related disorders and hope to expand on these findings in future studies. Additionally, we plan to further address sex differences by examining the role of sex hormones in this model at behavioral, anatomical, and molecular levels.

A/Prof Reichel (@ReichelLab) is inviting applications for a post-doctoral position to study novel circuitry underlying addiction pathology and memory. Email her for further information.

Free Journal Access
As EBPS members, we would like to remind you that you are entitled to free access to Psychopharmacology as well as the European Journal of Neuroscience via your personal pages on the EBPS website.

EBPS Website Designer
EBPS is looking to revamp their existing website and we’re looking for someone who has experience in website design and construction. This will be a volunteer position and you’ll be working closely with the executive committee and our communications rep, Anand Gururajan. If you’re interested, get in touch.

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